

1058  
B.E.(Bio-Technology)-4<sup>th</sup> Semester  
BIO-404: Industrial Microbiology

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, selecting atleast two questions from each Unit.

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UNIT-I

- I. Describe the various components of an ideal growth medium. What are crude medias? (10)
- II. (a) Write the principle of lyophilization.  
(b) How are spores preserved?  
(c) Write a note on solid state fermentation. (3+3+4)
- III. (a) Describe the role of saccharomyces *Cerevisiae* in biotechnology.  
(b) Write the various productions from bacillus. (5+5)
- IV. (a) Describe the process of 'random mutagenesis' for stain improvement. How are mutants selected from the population?  
(b) Define auxotrophs. (7+3)

UNIT-II

- V. Elaborate on the microbial production process for Pencillin. What are semi-synthetic penicillins? Examples. (10)
- VI. (a) Write the applications of amylases.  
(b) Describe the microbial process for production of amylases. How many types of amylases get produced? (3+7)
- VII. Write short notes on: -  
(a) Applications of polysacchases  
(b) Genetically engineered organisms (3+7)
- VIII. (a) Write the advantages of immobilization.  
(b) Elaborate on the various methods of immobilization. Illustrate with diagrams. (3+7)

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